WHAT IS CLAIMED IS:

1. An apparatus for treating a liquid with a first and a second chemical, comprising:

a conduit for introducing the liquid from a liquid source into a first inlet port of an intake manifold;

a second inlet port of said intake manifold introducing a first chemical into the liquid;

a first static mixing device having an inlet port connected in fluid communication with an outlet port of said intake manifold for mixing the first chemical with the liquid;

said outlet port of said first static mixing device being connected to a first inlet port of an interconnecting manifold;

a second inlet port of said interconnecting manifold introducing a second chemical into the liquid;

a second static mixing device having an inlet in fluid communication with an outlet port of said interconnecting manifold for mixing the second chemical with the liquid and for eluting the treated liquid from an outlet port of said second static mixing device; and

one of said first and second static mixing device comprising a spirally twisted tube forming a plurality of helixes extending between an inlet port and an outlet port for mixing the chemical with the liquid upon flowing along said plurality of helixes.

2. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 1, wherein each of said first and second static mixing devices comprises a tube having a polygonic cross-section spirally twisted for forming a plurality of helixes extending between said inlet port and said outlet port.

3. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 1, wherein each of said first and second static mixing devices comprises a tube having a square cross-section spirally twisted for forming a plurality of helixes extending between said inlet port and said outlet port.

4. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 1, wherein said second static mixing device has a cross-section greater than said first static mixing device for providing a high shear first static mixing device and to provide a low shear second static mixing device.

5. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 1, wherein said spirally twisted tube of said first and second static mixing device imparts a helical flow to the liquid between said inlet port and said outlet port for mixing the chemical with the liquid.

6. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 1, wherein said one of said first and second static mixing device comprises a first and a second spirally twisted tube section;

said first tube section being spirally twisted in a first direction for causing the liquid flowing through said first tube section to flow in a first helical direction; and

said second tube section being spirally twisted in a second direction for causing the liquid flowing through said second tube section to flow in a second helical direction.

7. An apparatus for treating a liquid with a first and a second chemical, comprising:

a liquid pump for pumping the liquid from a liquid source into a first inlet port of an intake manifold;

a first chemical pump for pumping a first chemical into a second inlet port of said intake manifold;

a first and a second static mixing device comprising a tube having a polygonic cross-section spirally twisted for forming a plurality of helixes extending between an inlet port and an outlet port;

said inlet port of said first static mixing device being connected in fluid communication with an outlet port of said intake manifold for mixing the first chemical with the liquid upon flowing along said plurality of helixes;

said outlet port of said first static mixing device being connected to a first inlet port of an interconnecting manifold;

a second chemical pump for pumping a second chemical into a second inlet port of said interconnecting manifold; and

said second static mixing device having an inlet in fluid communication with an outlet port of said interconnecting manifold for mixing the second chemical with the liquid and for eluting the treated liquid from an outlet port of said second static mixing device.

8. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 7, wherein each of said first and second static mixing devices comprising a spirally twisted tube having a square cross section for forming a plurality of helixes extending between said inlet port and said outlet port.

9. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 7, wherein said second static mixing device has a cross-section greater than said first static mixing device for providing a high shear first static mixing device and to provide a low shear second static mixing device.

10. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 7, wherein said spirally twisted tube of said first and second static mixing device imparts a helical flow to the liquid between said inlet port and said outlet port for mixing the chemical with the liquid.

11. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 7, wherein said one of said first and second static mixing device comprises a first and a second spirally twisted tube section;

said first tube section being spirally twisted in a first direction for causing the liquid flowing through said first tube section to flow in a first helical direction; and

said second tube section being spirally twisted in a second direction for causing the liquid flowing through said second tube section to flow in a second helical direction.

12. An apparatus for treating water with a first and a second chemical, comprising:

a water pump for pumping the water from a water source into a first inlet port of an intake manifold;

a first chemical pump for pumping a first chemical into a second inlet port of said intake

manifold;

a first static mixing device having an inlet in fluid communication with an outlet port of said intake manifold for mixing the first chemical with the water;

an outlet of said first static mixing device being connected to a first inlet port of an interconnecting manifold;

a second chemical pump for pumping a second chemical into a second inlet port of said interconnecting manifold; and

a second static mixing device having an inlet in fluid communication with an outlet port of said interconnecting manifold for mixing the second chemical with the water and for eluting the treated water from an outlet port of said second static mixing device.

13. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 12, wherein each of said first and second static mixing devices comprises a tube having a polygonic cross-section spirally twisted for forming a plurality of helixes extending between said inlet port and said outlet port.

14. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 12, wherein each of said first and second static mixing devices comprises a tube having a square cross-section spirally twisted for forming a plurality of helixes extending between said inlet port and said outlet port.

15. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 12, wherein said second static mixing device has a cross-section greater than said first static mixing

device for providing a high shear first static mixing device and to provide a low shear second static mixing device.

16. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 12, wherein said spirally twisted tube of said first and second static mixing device imparts a helical flow to the liquid between said inlet port and said outlet port for mixing the chemical with the liquid.

17. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 12, wherein said one of said first and second static mixing device comprises a first and a second spirally twisted tube section;

said first tube section being spirally twisted in a first direction for causing the liquid flowing through said first tube section to flow in a first helical direction; and

said second tube section being spirally twisted in a second direction for causing the liquid flowing through said second tube section to flow in a second helical direction.

18. An apparatus for treating waste water for removing dissolved and suspended material contained within the waste water, comprising:

a water pump for pumping the waste water from a waste water source into a first inlet port of an intake manifold;

a first chemical pump for pumping a first chemical into a second inlet port of said intake manifold;

a first static mixing device having an inlet in fluid communication with an outlet port of said

intake manifold;

said first static mixing device comprising a spirally twisted tube for imparting a helical flow to the waste water between said inlet port and an outlet port for mixing the chemical with the waste water;

an outlet of said first static mixing device being connected to a first inlet port of an interconnecting manifold;

a second chemical pump for pumping a second chemical into a second inlet port of said interconnecting manifold; and

a second static mixing device having an inlet in fluid communication with an outlet port of said interconnecting manifold; and

said second static mixing device comprising a spirally twisted tube for imparting a helical flow to the waste water between said inlet port and an outlet port for mixing the chemical with the waste water and for eluting the treated waste water from an outlet port of said second static mixing device.

19. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 18, wherein each of said first and second static mixing devices comprises a spirally twisted tube having a polygonic cross-section for forming a plurality of helixes extending between said inlet port and said outlet port.

20. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 18, wherein each of said first and second static mixing devices comprises a spirally twisted tube having a square cross-section for forming a plurality of helixes extending between said inlet

port and said outlet port.

21. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 18, wherein said second static mixing device has a cross-section greater than said first static mixing device for providing a high shear first static mixing device and to provide a low shear second static mixing device.

22. An apparatus for treating a liquid with a first and a second chemical as set forth in claim 18, wherein said one of said first and second static mixing device comprises a first and a second spirally twisted tube section;

said first tube section being spirally twisted in a first direction for causing the liquid flowing through said first tube section to flow in a first helical direction; and

said second tube section being spirally twisted in a second direction for causing the liquid flowing through said second tube section to flow in a second helical direction.

23. An apparatus for mixing a liquid with a first chemical, comprising:

a liquid pump for pumping the liquid from a liquid source into a first inlet port of an intake manifold;

a second inlet port of said intake manifold introducing a first chemical into the liquid;

a static mixing device having an inlet port connected in fluid communication with an outlet port of said intake manifold for mixing the first chemical with the liquid;

said outlet port of said static mixing device being connected to a first inlet port of an interconnecting manifold;

a second static mixing device having an inlet in fluid communication with an outlet port of said interconnecting manifold for mixing the first chemical with the liquid and for eluting the treated liquid from an outlet port of said second static mixing device; and

one of said first and second static mixing device comprising a spirally twisted tube forming a plurality of helixes extending between an inlet port and an outlet port for mixing the chemical with the liquid upon flowing along said plurality of helixes.

24. An apparatus for mixing a liquid with a first chemical as set forth in claim 23, wherein said first inlet port of said intake manifold being normal to said second inlet port of said intake manifold for providing high shear mixing of the first chemical in the liquid.

25. An apparatus for mixing a liquid with a first chemical as set forth in claim 23, wherein each of said first and second static mixing devices comprises a tube having a polygonic cross-section spirally twisted for forming a plurality of helixes extending between said inlet port and said outlet port.

26. An apparatus for mixing a liquid with a first chemical as set forth in claim 23, wherein each of said first and second static mixing devices comprises a tube having a square cross-section spirally twisted for forming a plurality of helixes extending between said inlet port and said outlet port.

27. An apparatus for treating a liquid with a first chemical as set forth in claim 23, wherein said spirally twisted tube of said first and second static mixing device imparts a helical flow to the

liquid between said inlet port and said outlet port for mixing the chemical with the liquid.

28. An apparatus for treating a liquid with a first chemical as set forth in claim 23, wherein said one of said first and second static mixing device comprises a first and a second spirally twisted tube section;

said first tube section being spirally twisted in a first direction for causing the liquid flowing through said first tube section to flow in a first helical direction; and

said second tube section being spirally twisted in a second direction for causing the liquid flowing through said second tube section to flow in a second helical direction.

29. A method of treating wastewater comprising:

pumping wastewater into an intake manifold;

injecting a first chemical (iron chloride/calcium chloride) into the intake manifold;

mixing the wastewater and a first chemical in a high shear first static mixing device;

injecting an anionic polymer into a manifold interconnecting the second end of the high shear first static mixing device and the first send of a low shear second static mixing device;

mixing the wastewater and a first chemical and the anionic polymer in a low shear second static mixing device and

receiving the treated wastewater from the second end of the low shear second static mixing device.

30. A method for mixing and diluting a chemical in water comprising:

pumping water into a first end of a static mixing device;

injecting a liquid water soluble chemical into the first end of the static mixing device;

and

collecting the diluted chemical in water from a second end of a static mixer.